

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (canceled)
2. (currently amended) The fuel bundle of Claim 4 22, wherein a void formed above each of the part-length rods together with the ~~at least one~~ fluid passage each define a water trap when containing a fluid, to trap neutrons.
3. (currently amended) The fuel bundle of Claim 4 22, further comprising:
a generally parallel configuration of the fuel rods; and
at least one support member connected to the channel to equidistantly space ~~adjacent~~ proximate ones of the fuel rods in the generally parallel configuration.
4. (currently amended) The fuel bundle of Claim 3, wherein the opposed ends comprise:
a lower feed end having a first support structure for receiving a lower end of each of the fuel rods and the fluid passage~~[[s]]~~; and
an upper discharge end having a second support structure for receiving an upper end of each of the full-length fuel rods and the fluid passage~~[[s]]~~.

5. (Original) The fuel bundle of Claim 4, wherein the channel further comprises:

a connecting structure for supporting the channel.

6. (currently amended) The fuel bundle of Claim 4 22, wherein the second rod group further comprises a plurality of subgroup pairs of the part-length rods, each subgroup pair positioned ~~adjacent~~ proximate to the perimeter wall.

7. (withdrawn) The fuel bundle of Claim 6, wherein the second rod group further comprises both pairs and individual ones of the part-length rods, the pairs and the individual ones of the part-length rods spaced about the perimeter wall.

8. (canceled)

9. (currently amended) The fuel bundle of Claim 8 23, wherein the channel includes an inlet end, an outlet end oppositely positioned from the inlet end, and at least one fluid passage ~~defined~~ defining a tube within rigidly connectable to the perimeter wall and extending between the inlet end and the outlet end.

10. (currently amended) The fuel bundle of Claim 8 23, wherein the channel has a rectangular cross-section.

11. (currently amended) The fuel bundle of Claim 8 23, wherein ~~adjacent~~ proximate ones of the fuel rods ~~along~~ in each of the rows and columns have a fixed spacing therebetween.

12. (canceled)

13. (withdrawn) The fuel bundle of Claim 12, wherein the second rod group further comprises both pairs and individual ones of the part-length rods.

14. (currently amended) The fuel bundle of Claim ~~12~~ 23, wherein each ~~rod~~ subgroup ~~pair~~ part-length fuel rod of the pairs of part-length fuel rods of the second rod group operably forms one of the face-to-face pairs with another rod subgroup one of the full-length fuel rods.

15. (currently amended) The fuel bundle of Claim 9, further comprising~~[[:]]~~ a circular shaped tube defining each fluid passage and ~~having the first rod group disposed adjacent thereto.~~

16. (withdrawn) The fuel bundle of Claim 9, further comprising:
a rectangular shaped tube defining each fluid passage and having the first rod group disposed adjacent thereto.

17. (currently amended) A fuel bundle providing multiple length fuel rods, comprising:

a channel having four interior walls and ~~at least one~~ a proximately positioned pair of water passages defined therein each defining a tube rigidly supported to the channel;

a plurality of full-length fuel rods rigidly supported within the channel, the full-length fuel rods generally disposed face-to-face in column/row alignment, including a first set ~~located adjacent~~ proximately positioned at ~~to~~ the four interior walls, and a second set separated from the four interior walls by the first set ~~located adjacent to the water passage;~~

a plurality of first subgroups of each having two proximately positioned part-length fuel rods, each first subgroup disposed adjacent one of the four interior walls and interposed with the first set of full-length fuel rods, ~~at least one subgroup including a pair of adjacent part-length rods; and ;~~

~~a clumped subgroup~~ pair of second sub-groups of part-length fuel rods disposed about each second sub-group positioned proximate to both the water passages, ~~the clumped subgroup including at least one pair of adjacent part-length rods.~~ ; and

each of the second sub-groups of part-length fuel rods including three part-length fuel rods configured in a triangle shape;

wherein any of the part-length fuel rods of the first sub-groups are spatially separated from any of the part length fuel rods of the second sub-groups by at least two of the full-length rods.

18. (currently amended) The fuel bundle of Claim 17, wherein the channel further comprises:

at least one lower support operable to rigidly support and space the full-length fuel rods, the part-length fuel rods, and the water passages; and

at least one upper support operable to rigidly support and space the full-length fuel rods and the water passages.

19. (currently amended) The fuel bundle of Claim 18, wherein the channel further comprises at least one intermediate rod support disposed between the lower support and the upper support, positioned to rigidly support and space the full-length fuel rods, the part-length fuel rods and the water passages.

20. (Original) The fuel bundle of Claim 17, wherein the channel further comprises a body lifting member.

21. (Original) The fuel bundle of Claim 17, wherein each water passage has a shape selected from the group consisting of a circle, an oval, a square, a rectangle, a cruciform and a free-formed shape.

22. (new) A fuel bundle, comprising:

- a channel having a perimeter wall and opposed ends;
- a pair of fluid passages each defining a tube rigidly supported within the channel and extending between the opposed ends, the fluid passages aligned proximate to each other and each proximate to a longitudinal centerline of the fuel bundle;
- a plurality of fuel rods rigidly supported within the channel, each positioned in one of a plurality of rows and one of a plurality of columns of the fuel rods, the fuel rods including both full-length rods and part-length rods; and
- the part-length rods distributed in two rod groups including:
 - a first rod group having two sub-groups each having three part-length rods arranged in a triangular-shape, each sub-group positioned proximate to each of the fluid passages; and
 - a second rod group having part-length rods each positioned within and proximate to the perimeter wall, the second rod group including a plurality of pairs of proximately arranged part-length rods;
- wherein any of the part-length rods of the first rod group are spatially separated from any of the part length rods of the second rod group by at least two of the full-length rods.

23. (new) A fuel bundle, comprising:

- a generally hollow channel having a perimeter wall;
- a plurality of fuel rods including both full-length and part-length fuel rods rigidly supported to the channel, each of the fuel rods arranged in one a plurality of rows and one of a plurality of columns of the fuel rods;
- each of the rows and each of the columns disposed along a respective centerline, such that proximate ones of the fuel rods on each of the centerlines define each of a plurality of face-to-face pairs of fuel rods; and
- the part-length fuel rods being separable into two rod groups, including:
 - a first rod group having two sub-groups each including three part-length rods arranged in a triangular-shape, the two sub-groups positioned proximate to each other and proximate to a longitudinal centerline of the fuel bundle; and
 - a second rod group having part-length fuel rods each positioned proximate to the perimeter wall, the second rod group being divisible into a plurality of pairs of proximately positioned part-length rods;
- wherein any of the part-length rods of the first rod group are spatially separated from any of the part length rods of the second rod group by at least two of the full-length rods; and
- wherein at least one of the part-length fuel rods of each sub-group is separable from one of the part length rods of the second rod group by one of the face-to-face pairs of the fuel rods having two of the full-length fuel rods.